

PAPER ID: 17-05-0157

Impact of Extraneous Cognitive Load on Multimedia based Grammar Learning: A Comparative Study

Nadia Refat¹, Hafizoah Kassim¹

¹Centre for Modern Languages and Human Sciences, Universiti Malaysia Pahang

Cognitive load is a theoretical notion having an increasingly influential role in the educational research areas that asserts that cognitive capacity in working memory is limited where too much load on the cognitive system may hamper the total learning process and learning outcome. Intrinsic cognitive load, extrinsic load and germane cognitive load are three types of cognitive load. There is a strong link between extraneous cognitive load and instruction design which recognizes that learning materials can overload a learner's cognitive effort. It has a negative influence on learning performance which has not been focused yet for multimedia based grammar learning. The present work thus sets out to explore how much difference occurs on human cognition with two different types of multimedia based instructions. To conduct the research, a quantitative research method was adopted with the use of two instruments (online test and NASA- TLX) to measure the impact (performance outcome and extraneous cognitive load) of the two type instructions on learners. The instruments are used with a view to 1) identify performance variation of the students on different tasks through online test 2) measure mental workload with NASA task load index. The findings revealed that the instructions with proper maintain principles of cognitive theory of multimedia learning have better performance and low cognitive overload on students than that of the instructions with violating the cognitive principles of multimedia learning.

Keywords: Extraneous Cognitive load, instruction design, multimedia learning, NASA-TLX.

PAPER ID: 17-05-0228

Proposal of CPU-Free Environment Using PC in Your Pocket Technology

Fatin Athirah Azalan¹, Muhamad Idaham Umar Ong^{1,2}

¹Faculty of Computer Systems & Software Engineering, University Malaysia Pahang, Malaysia

²Software Engineering Research Group, Faculty of Computer Systems & Software Engineering, University Malaysia Pahang, 26300 Gambang, Malaysia

This product is compatible with all modern android devices that helps in turn your android smartphone into a complete laptop. This product help to overcome the small screen size problem and limited mobile interface when using smartphones. This product can provide a large screen, keyboard and multi touch track pad. Problem statement that should be overcome by develop this product are people must spend a lot amount of money to upgrade or buy a new laptop, utilizes smartphone resources and limited usability of an android smartphones because of smaller screen compared to a laptop. Objectives of this product are to design a solution that can help the user to reduce cost of buying a new laptop, to develop a product that can improve the usability of the smartphones and to verify whether the product can utilize smartphone resources. Methodology use in development of this product is Rapid Application Development (RAD) which is a software development methodology that uses minimal planning in favor of rapid prototyping. This product enables user to display all the applications inside the smartphones into the larger screen and using the smartphones operating system. The contribution of this research will enable the consumer to utilize their pocket PC resources efficiently.

Keywords: PC in Your Pocket, Mobile Phone, Hardware Development